

Appl. No. 10/145,578  
Reply to Office Action of December 18, 2005  
Atty. Dkt. No. NVDA/P000419

**IN THE CLAIMS:**

The listing of claims below will replace all prior versions and listings of claims in the application. Please cancel claims 5, 9-12, and 16-23 and amend the claims as follows:

**Claim 1 (Currently Amended):** A method for shaping a shared edge between two N-patches, comprising:

obtaining a first normal at a first shared vertex of the shared edge for one of the two N-patches;

obtaining a second normal at the first shared vertex of the shared edge for another of the two N-patches; ~~[[and]]~~

computing a cross product for the first normal and the second normal to provide a first tangent, wherein the tangent provides a projection for determining the shared edge; and

computing a modified tangent using at least the first tangent and the first shared vertex.

**Claim 2 (Original):** The method according to Claim 1, further comprising using the first tangent to shape the shared edge.

**Claim 3 (Original):** The method according to Claim 1, further comprising:

obtaining a third normal at a second shared vertex of the shared edge;

obtaining a fourth normal at the second shared vertex of the shared edge; and

computing a cross product for the third normal and the fourth normal to provide a second tangent.

**Claim 4 (Currently Amended):** The method according to Claim ~~[[1]]~~ 3, wherein the second tangent provides another projection for determining the shared edge.

**Claim 5 (Canceled)**

**Claim 6. (Original):** The method according to Claim 1, further comprising determining at least one control point.



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**Claim 7 (Original):** The method according to Claim 6, wherein the at least one control point influences shaping of the shared edge.

**Claim 8 (Currently Amended):** A method for geometry generation, comprising:  
obtaining a model comprising polygons;  
determining vector normals for the model;  
converting the model to a higher-order form of the model by converting the polygons to respective N-patch versions thereof and adding control points to the model;  
identifying shared edges for the higher-order form of the model;  
determining dot products for respective normal pairs at shared vertices;  
generating tangents for the higher-order form of the model responsive to the shared edges and responsive to the dot products not exceeding the threshold value;  
and  
shaping the shared edges at least partially responsive to at least one of the tangents.

**Claims 9-12 (Canceled)**

**Claim 13 (Currently Amended):** The method according to Claim [[12]] 8, further comprising shaping the shared edges partially responsive to at least one of the control points.

**Claim 14 (Original):** The method according to Claim 8, wherein the higher-order form of the model comprises Bezier patches.

**Claim 15 (Currently Amended):** A method for tessellation, comprising:  
providing a tessellator;  
providing an N-patch to the tessellator;  
generating N-patches with the tessellator in response to the N-patch;  
identifying for two of the N-patches a shared edge; [[and]]  
ascertaining whether the shared edge should be created by computing a dot product, the dot product for a first normal of one of the two of the N-patches and a



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second normal of another of the two of the N-patches at a common vertex of the shared edge and comparing a scalar result of the dot product to a threshold value therefore;

responsive to the determination that the shared edge should be creased, taking a cross product of the first normal and the second normal at the common vertex of the shared edge, wherein a tangent vector is generated;

responsive to a determination that the shared edge should be creased, shaping the shared edge at least partially responsive to the tangent vector; and

shaping the shared edge partially responsive to at least one control point of at least one of the two N-patches.

Claims 16-23 (Canceled)

Claim 24 (New): A method for shaping a shared edge between two N-patches, comprising:

obtaining a first normal at a first shared vertex of the shared edge for one of the two N-patches;

obtaining a second normal at the first shared vertex of the shared edge for another of the two N-patches;

computing a cross product for the first normal and the second normal to provide a first tangent, wherein the tangent provides a projection for determining the shared edge; and

determining at least one control point.

Claim 25 (New): The method according to Claim 24, further comprising using the first tangent to shape the shared edge.

Claim 26 (New): The method according to Claim 24, further comprising:

obtaining a third normal at a second shared vertex of the shared edge;

obtaining a fourth normal at the second shared vertex of the shared edge; and

computing a cross product for the third normal and the fourth normal to provide a second tangent.



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**Claim 27 (New):** The method according to Claim 26, wherein the second tangent provides another projection for determining the shared edge.

**Claim 28 (New):** The method according to Claim 27, wherein the at least one control point influences shaping of the shared edge.